

Utah Lake's endangered fish and you. What's the connection?

June sucker

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A **LOOK BACK in time:**
The story of Utah Lake and its June suckers begins about 15,000 years ago.

That's when Lake Bonneville, which covered nearly half of what is now the state of Utah, began to drain and dry up.

When the lake disappeared about 10,000 years ago, it left behind several large lakes. One of these lakes became known as Utah Lake, the largest freshwater lake west of the Mississippi River.

One of the fish that swam in Lake Bonneville was the June sucker. As the lake retreated, the June sucker and 12 other fish species, including the Bonneville cutthroat trout and the Utah sucker, became isolated within Utah Lake. These native fish thrived in their new environment, and millions of June suckers filled the shallow lake.

The situation is much different today, however. Fewer than 1,000 adult June suckers live in Utah Lake, and the fish is now federally listed as an

endangered species.

What changed 150 years ago?

This is where the ancestors of many of us come into the story. For the state's early residents—Native Americans, Spanish explorers in the 1700s, fur trappers and traders in the early 1800s,

the Mormon pioneers who arrived in 1847 and the stream of settlers who followed—Utah Lake was a treasured resource that provided needed water and food. Its fish played a significant role in the area's settlement and literally fostered the growth of civilization in Utah.

In 1848, an early frost killed most of the Mormon pioneer's crops. Swarms of grasshoppers destroyed what was left. The residents in the valley were faced with starvation. To find food, the pioneers organized fishing companies and turned to Utah Lake.

Using large nets (seines) made of cotton, flax or yarn, the pioneers caught thousands of pounds of cutthroat trout, June suckers, Utah suckers and other fish. Driven by hunger, more people fished even more frequently over time. Records from 1855 hunger relief efforts show that 2,301 pounds of fish were dispensed through Salt Lake City's public works department. During the summer of 1856, fishing companies organized by Mormon wards caught tons of fish, including one ward that reported catching about eight tons.

In those early days, the number of fish in Utah Lake seemed infinite. The



Invasive plant species are causing a change in Utah Lake's habitat.



Found only in Utah Lake and once numbering in the millions, the June sucker is now threatened with extinction.

abundance of fish is reflected in an 1854 recollection of George Washington Bean, one of Provo's first settlers, "So great was the number of suckers and mullets passing continuously upstream that often the river would be full from bank to bank, as thick as they could swim for hours and sometimes days together."

Because the number of fish in the lake seemed to be infinite, little thought was given to their long-term survival. People seined night and day and even placed stationary gill nets across the mouth of the Provo River where the fish were attempting to spawn. Utah Lake's fish became a valuable commodity, and laws that regulated fishing methods and the number of fish that could be taken from the lake were often disregarded.

A variety of other events also threatened the health of Utah Lake's fish. During the 1850s, numerous canals and diversion dams were built for irrigation. These dams presented barriers that did not allow the fish to move up the rivers and streams to spawn. Unscreened ditches also carried thousands of adult and newly hatched fish onto farmers' fields, instead of back to the lake. Rivers

and streams that led to and from the lake were straightened, channeled and dredged to divert water, expedite the delivery of water and provide flood control. These changes caused water levels to fluctuate and damaged habitat.

Fish populations also suffered greatly in the 1880s when a portion of the Provo River was de-watered for irrigation, killing close to one million spawning suckers. In the 1880s, sugar beet processing waste and sawdust from sawmills was also dumped into streams that feed the lake. Sewage dumping followed in the 1890s.

All of these factors led to a serious decline in Utah Lake's native fish populations. But instead of instituting regulations to protect the native fish, non-native fish were introduced into Utah Lake. It was hoped that these non-native fish would allow the lake to continue to provide a food source and a commercial fishery.

Carp and the June sucker:

The decision to introduce non-native fish, especially carp, resulted in a series of events that changed Utah Lake

forever.

Introduced into Utah Lake in 1881, carp now comprise more than 90 percent of the fish biomass in the lake. Carp are a hardy fish that are very popular in other parts of the world, but their aggressive foraging habits have destroyed Utah Lake's aquatic vegetation. The loss of vegetation makes it easier for waves to stir up sediments, which causes the water in the lake to be more turbid, or muddy, in appearance. High levels of nutrients from runoff and waste water treatment plants also fuel algae growth. This algae growth can deplete oxygen levels and kill fish.

The lack of aquatic vegetation leaves young June suckers without cover in which to hide. This lack of cover makes them vulnerable to predation by white bass and walleye, two of the more than 20 non-native fish species that have been introduced to the lake.

What's special about June suckers?

Of the 13 native fish that once lived in Utah Lake, the June sucker is one of only two fish that are still found there.

The June sucker is a member of the



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lakesucker family, Castostomidae. Their peak spawning time occurs during the month of June, and that's how the June sucker got its name. A large steel-gray fish with a white belly, June suckers grow to 17 to 24 inches long and weigh about five pounds. Their head is wide and rounded, with a distinct hump on their snout.

Pelagic planktivores, June suckers feed on single-celled zooplankton in the middle water column. They swim in groups and feed by opening their mouths, filtering out plankton with special structures called gill rakers.

June suckers are endemic to Utah Lake, which means they're found naturally only in Utah Lake and nowhere else in the world. A few refuge populations have been established elsewhere

as part of a recovery program that was developed after the U.S. Fish and Wildlife Service listed the species as endangered on April 30, 1986.

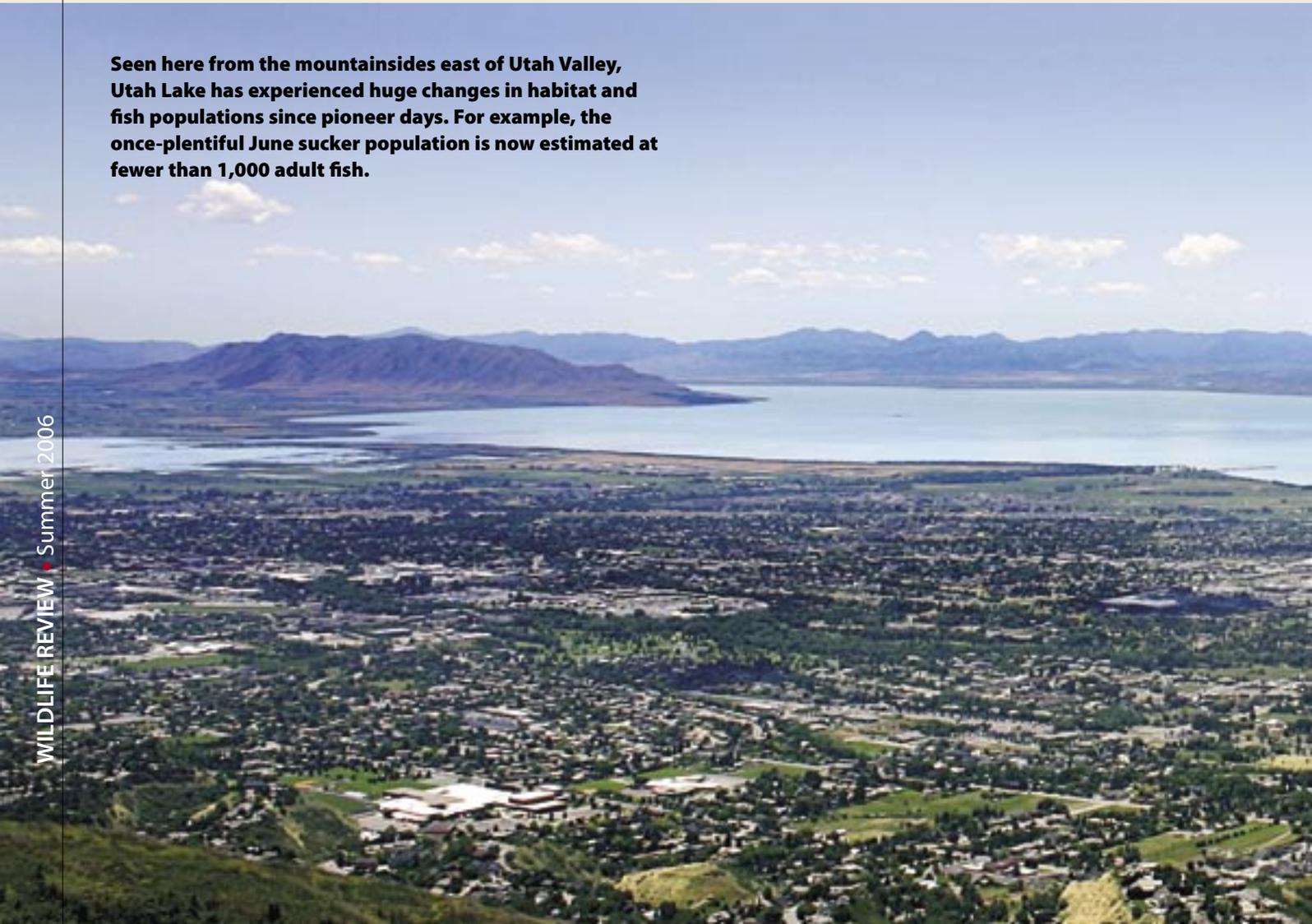
Historically, June suckers were very abundant in Utah Lake. David S. Jordan, visiting the lake in 1889, reported millions of suckers in the lake and proclaimed Utah Lake, "...the greatest sucker pond in the universe." Commercial anglers reported large annual catches of suckers through the early 1900s. Between 1901 and 1905, an average of about 178 tons of suckers were harvested each year. In the early 1950s, the catch of suckers was still relatively high, with reports of as many as 1,250 suckers caught in a single day of commercial seining.

By the late 1970s, however, June

sucker numbers had plummeted. The decline corresponds closely with the introduction of white bass and walleye to the lake in the mid-1950s. When they were listed as endangered in 1986, the wild June sucker population was thought to be less than 1,000 fish. A 1998 report indicated the wild adult spawning population was closer to 300 individuals.

The life cycle of the June sucker begins in the lower Provo River. Each spring, between April and June, adult June suckers enter the river from Utah Lake to spawn. In most years, the area where the fish can spawn is limited to the lower three miles of the river because an irrigation diversion doesn't allow the fish to pass farther upstream. In very wet years, they can migrate far-

Seen here from the mountainsides east of Utah Valley, Utah Lake has experienced huge changes in habitat and fish populations since pioneer days. For example, the once-plentiful June sucker population is now estimated at fewer than 1,000 adult fish.





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ther and can access an additional 1.9 miles of spawning habitat before they reach another irrigation diversion that's impossible for them to pass.

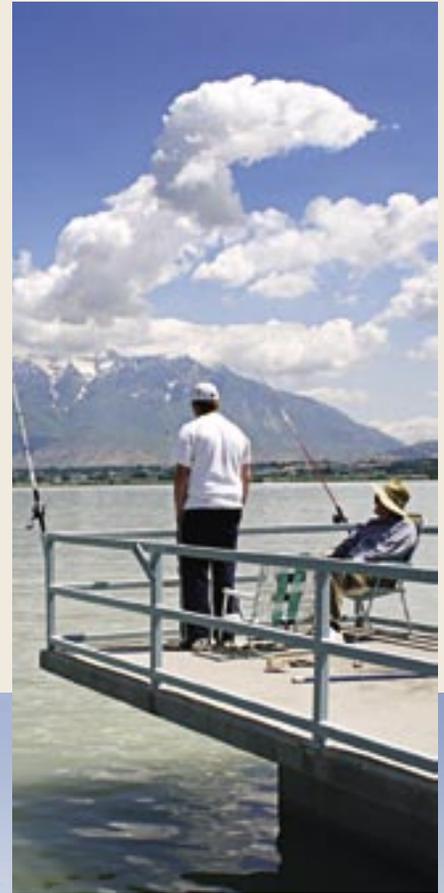
Soon after spawning, the adult suckers return to Utah Lake.

Depending on the temperature of the water, June sucker eggs hatch in four to 10 days. After they hatch, larvae emerge from the gravel bed where the eggs were laid and begin drifting downstream. Unfortunately, little is known about the early years of a June sucker's life because researchers haven't been able to capture any. It's believed the drifting larvae are either eaten by non-native fish in the Provo River, or they die because the altered habitat in the lake does not provide the food or temperatures the fish need to survive.

June suckers raised by the Division of Wildlife Resources in a hatchery are placed into Utah Lake when they're about 8 inches long, which is large enough to avoid predation. These fish have survived and have matured to the point that they've been able to spawn in the wild themselves. The ability of hatchery fish to survive, grow and reach sexual maturity shows that the bottleneck that's limiting the natural recruitment of June suckers is in the early stages of a fish's life.

June suckers reach reproductive maturity at age five or six and live to be about 40 years old.

To date, more than 8,500 juvenile June suckers have been released into Utah Lake. The total number that have survived to adulthood is not known,



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however. Total recovery of the fish will only be achieved after they're able to complete their entire life cycle in their native habitat.

Utah Lake and the June sucker:

Despite the significant role June suckers have played in Utah's history, a recent survey found that more than 83 percent of Utahns have never heard of them. And many of the people who have heard of the June sucker see the federally protected fish as a nuisance.

What many people don't realize is that recreating a healthy habitat for June suckers will benefit the entire Utah Lake ecosystem, the people who live around the lake and the area's economy. June suckers are considered an indicator species—a species whose health reflects the health of the ecosystem of which it is a part.

In April 2002, the June Sucker Recovery Implementation Program (JSRIP) was formed. The JSRIP has two intertwined goals: recover the June sucker so it no longer requires protection under the Endangered Species Act while allowing people to continue to develop and use water resources along the Wasatch Front.

The JSRIP is a broad coalition of federal, state and local groups, including the U.S. Fish and Wildlife Service, the Utah Department of Natural Resources, water resource agencies, and environmental and outdoor groups.

To help people understand more about June suckers and Utah Lake, the JSRIP has produced a book titled *Utah Lake: Legacy* that chronicles the history of the June sucker and its long-neglected home. An exceptionally well-done documentary based on the book aired on KBYU Channel 11 in spring 2006. A DVD of the program is available by request (see resources below).

Changing public attitudes about Utah Lake is an important step to cleaning up the lake. Other steps include ensuring good water quality by limiting the amount of pollutants that enter the lake; reducing the lake's carp population;



Human use of Utah Lake has often been at odds with the June sucker .

reestablishing historic river and stream flows; and restoring spawning and nursery habitat.

Cleaning up Utah Lake and recovering the June sucker is a challenging, long-term project, and much of its success will depend on public support. This restored lake will be a jewel that future generations can enjoy, just like our ancestors did.

Resources:

- *Utah Lake: Legacy* by D. Robert Carter, Vanguard Media Group, 2003. (Check

your local or school library, or order for \$15)

- *Free Utah Lake: Legacy* DVD and Educator Study Guide. Request by e-mailing BrendaLandureth@utah.gov.
- June Sucker Recovery Implementation Program Web site: www.June-SuckerRecovery.org
- June Sucker Recovery Implementation Program—Program Director's Office. (801) 538-5273.



More information: Getting WILD! Utah's WILD Notebook is produced by Utah's Project WILD program. WILD workshops, offered by the Utah Division of Wildlife Resources, provide teachers and other educators with opportunities for professional development and a wealth of wildlife education activities and materials for helping students learn about wildlife and its conservation. For a current listing of Project WILD educator workshops, visit the Project WILD Web site at www.wildlife.utah.gov/projectwild or send an e-mail to DianaVos@utah.gov.